

**CLAIMS**

1. Microstructure comprising in a first layer insulated from a substrate (6) by an insulator layer (7) at least one sensitive element (1) connected  
5 to at least one contact pad (3) by an electrical connection (2) and protected by a package cap (5), characterised in that the sensitive element (1), the electrical connection (2) and the contact pad (3) form an assembly (10) delimited in the first layer by at  
10 least one trench (11), said assembly (10) being covered by the package cap (5), said package cap comprising at least one opening (12) above the contact pad (3) and being integral with on the one hand the contact pad (3) on the edges of the opening (12) and on the other hand  
15 a zone (9) located beyond the trench (11) in relation to the assembly (10).

2. Microstructure according to claim 1, characterised in that the package cap (5) is sealed in  
20 a leak tight manner in such a way as to define a leak tight cavity (15) in which is located the sensitive element (1).

3. Microstructure according to claim 2, characterised in that the package cap (5) comprises at  
25 least one orifice (13) capable of being sealed by a plug (14) in such a way as to be able to control the atmosphere of said cavity (15).

30 4. Microstructure according to one of claims 1 to 3, characterised in that the electrical

connection (2), the contact pad (3) and the sensitive element (1) are formed in a same material.

5           5. Microstructure according to one of claims 1 to 4, characterised in that the package cap (5) is formed in dielectric material.

          6. Microstructure according to one of claims 1 to 4, characterised in that the package cap  
10       (5) is formed in semi-conductor or conductor material.

          7. Microstructure according to claim 6, characterised in that the assembly (10) and the package cap (5) are formed in a same conductor or semi-  
15       conductor material.

          8. Microstructure according to one of claims 6 or 7, characterised in that a dielectric layer (22) insulates the package cap (5) from the contact pad  
20       (3).

          9. Microstructure according to one of claims 6 to 8, characterised in that a dielectric layer (22) insulates the package cap (5) from the zone (9).  
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          10. Microstructure according to one of claims 1 to 9, characterised in that the contact pad (3) is covered with a conductive band (4) at the level of the opening (12).  
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11. Microstructure according to one of claims 1 to 10, characterised in that the package cap (5) comprises at least one pillar (16) resting on a zone (17) of the sensitive element (1).

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12. Microstructure according to claim 11, characterised in that the zone (17) of the sensitive element is integral with the substrate (6).

10 13. Microstructure according to one of claims 11 or 12, characterised in that when the package cap (5) is formed in conductor or semi-conductor material, it comprises at least one pillar (16) that is resting on a zone (17) of the sensitive element (1),  
15 the package cap (5) and the pillar (16) contributing to forming an electrical connection with the zone.

14. Microstructure according to one of claims 11 or 12, characterised in that when the package  
20 cap (5) is formed in conductor or semi-conductor material, the pillar (16) is electrically insulated from the sensitive element (1).

15. Method of manufacturing a  
25 microstructure comprising on a substrate (6) at least one sensitive element (1) connected to at least one contact pad (3) by an electrical connection (2), characterised in that it comprises the following steps:  
forming on the substrate (6) of a first  
30 layer (20) intended to form the sensitive element (1), the electrical connection (2) and the contact pad (3),

etching of the first layer (20) at the contours of the sensitive element (1), the electrical connection (2) and the contact pad (3) in such a way that they form an assembly (10) delimited by at least one trench (11),

forming above the first etched layer (20) a sacrificial layer (23) and shaping to form an impression of a package cap (5) to be deposited subsequently,

forming on the impression a second layer (24) intended to form the package cap (5) and shaping of the second layer (24) by etching at least one opening (12) above the contact pad (3), at least one orifice (13) through which is eliminated the sacrificial layer (23), making the package cap (5) integral with on the one hand the contact pad (3) on the edges of the opening (12) and on the other hand a zone (9) located beyond the trench (11) in relation to the assembly (10).

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16. Method according to claim 15, characterised in that the elimination of the sacrificial layer (23) frees a leak tight cavity (15) defined by the package cap (5), it comprises a step of forming a plug (14) in the orifice (13) after controlling the atmosphere found in the cavity (15).

17. Method according to one of claims 15 or 16, characterised in that it comprises, before the step of etching of the first layer (20), a step of depositing a dielectric layer (22) on the contact pad

(3) to insulate the package cap (5) from the contact pad (3) around the opening (12) when the package cap (5) is formed in conductor or semi-conductor material.

5                   18. Method according to one of the claims  
15 to 16, characterised in that it comprises, before  
the step of etching of the first layer (20), a step of  
depositing a dielectric layer (22) on the zone (9) to  
insulate the package cap (5) from the zone (9) when the  
10 package cap (5) is formed in conductor or semi-  
conductor material.

                  19. Method according to one of the claims  
15 to 18, characterised in that it comprises a step of  
15 depositing a conductor material (4) at the summit of  
the contact pad (3) at the level of the opening (12).

                  20. Method according to one of the claims  
15 to 19, characterised in that the step of shaping of  
20 the sacrificial layer (23) provides for the etching of  
at least one sink (25) intended to form a mould for a  
pillar (16) of the package cap (5) connecting it to the  
sensitive element (1).

25                   21. Method according to claim 20 linked to  
claim 18, characterised in that when the package cap  
(5) comprises at least one pillar (16) resting on a  
zone (17) of the sensitive element (1) and that the  
package cap (5) is conductor or semi-conductor, the  
30 dielectric layer (22) is also deposited at the level of  
the zone (17) of the sensitive element (1).